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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/668,181	09/24/2003	Caroline Osterhoff	35-268	5220

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EXAMINER	
ULM, JOHN D	
ART UNIT	**PAPER NUMBER**
1649	

MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/668,181	OSTERHOFF ET AL.	
	Examiner	Art Unit	
	John D. Ulm	1649	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 August 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14,17,19-30,33 and 34* is/are pending in the application.

4a) Of the above claim(s) *6-14,19,20 and 22-30* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,17,21,33 and 34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1) Claims 1 to 14, 17, 19 to 30, 33 and 34 are pending in the instant application. Claims 1 to 3, 5 and 33 have been amended and claim 34 has been added as requested by Applicant in the correspondence filed 23 August of 2007.

2) Any objection or rejection of record that is not expressly repeated in this action has been overcome by Applicant's response and withdrawn.

3) The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Election/Restrictions

4) Claims 6 to 14, 19, 20 and 22 to 30 stand withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to an invention that was nonelected with traverse in the correspondence filed 05 October of 2005.

Claim Rejections - 35 USC § 101

5) Claims 1 to 5, 17, 21, 33 and 34 are rejected under 35 U.S.C. § 101 because they are drawn to an invention with no apparent or disclosed specific and substantial credible utility for those reasons of record as applied to claims 1 to 5, 17, 21 and 22 in section 3 of the office action mailed 29 November of 2005. As stated therein and repeated in the office action mailed 23 April of 2007, the instant claims are drawn to an isolated mammalian epididymis-specific receptor polypeptide that lacks a specific and substantial utility in currently available form because the instant application does not disclose an established specific biological role for the claimed polypeptide or its

significance to a particular disease, disorder of physiological process which one would wish to manipulate for a desired clinical effect.

Applicant has traversed this rejection on the premise that a requirement that Applicant disclose the identity of an agonist for that receptor, which is presumably a structurally unrelated compound is unreasonable. Applicant appears to be urging that, because some G protein-coupled receptors have been found to be constitutively active, one does not need to know the identity of at least one agonist of the claimed receptor before one could employ it to identify antagonists thereto.

As an initial matter, an isolated protein can be patented even if it has no disclosed function, provided that it has a substantial disclosed utility. When such a protein can be used as a marker for a disease or disorder by virtue of the fact that it is present in a diseased or dysfunctional tissue or organ but not in the corresponding healthy tissue or organ, or vice versa, that isolated protein has a substantial and specific diagnostic utility. The instant specification indicates that the protein described therein is expressed in an epididymis-specific manner. The first paragraph of the specification alleges that the protein described therein can be used "for the preparation of agents for diagnosis of male infertility". However, there is no evidence provided by the instant specification that this protein is expressed in healthy epididymis tissue but absent from diseased or dysfunctional epididymis tissue, or vice versa. Further, the instant specification fails to identify any known disease or disorder in which epididymis tissue and, therefore, the claimed protein are absent. The instant specification appears to be relying upon future discoveries by Applicant or others to identify such a disease or

disorder or to establish a nexus between either the expression or functionality of the claimed protein and infertility in males. It is a matter of law that an invention must have a specific and substantial utility "in currently available form", which precludes the need for further research, if that research is needed to establish or reasonably confirm a specific and substantial utility for the claimed invention (*Brenner v. Manson*, 148 U.S.P.Q. 689 (Sus. Ct, 1966)),.

The only disclosed function for a protein of the instant invention is as a G protein-coupled receptor that is expressed in epididymis tissue. There is no evidence presented in the instant application, as filed, that the activation or inhibition of the claimed protein has a particular effect, if any, upon fertility in males. More specifically, the instant specification also fails to disclose if it is the stimulation or the inhibition of the claimed protein that affects spermatogenesis and whether the activation of the claimed protein stimulates or inhibits spermatogenesis. It is well known in the art that the agonist activation of different G protein-coupled receptors have profoundly different effects, depending upon the receptor, the cell type in which it is expressed and the types of G proteins with which it naturally interacts. For example, it was well known in the art long before the making of the instant invention that mammalian β-adrenergic receptors and D_2 dopamine receptors, as well as their respective ligands, are very closely related structurally. It was also very well known at that time that the administration of adrenaline to an individual has profoundly different effects from those obtained by the administration of dopamine. The following is an excerpt from M.P.E.P. 2138.05:

"CLAIMED INVENTION IS NOT ACTUALLY REDUCED TO PRACTICE UNLESS THERE IS A KNOWN UTILITY

Utility for the invention must be known at the time of the reduction to practice. Wiesner v. Weigert , 212 USPQ 721, 726 (CCPA 1981) (except for plant and design inventions); Azar v. Burns , 188 USPQ 601, 604 (Bd. Pat. Inter. 1975) (a composition and a method cannot be actually reduced to practice unless the composition and the product produced by the method have a practical utility); Ciric v. Flanigen , 185 USPQ 103, 105 - 6 (CCPA 1975) ("when a count does not recite any particular utility, evidence establishing a substantial utility for any purpose is sufficient to prove a reduction to practice"; "the demonstrated similarity of ion exchange and adsorptive properties between the newly discovered zeolites and known crystalline zeolites ... have established utility for the zeolites of the count"); Engelhardt v. Judd , 151 USPQ 732, 735 (CCPA 1966) (When considering an actual reduction to practice as a bar to patentability for claims to compounds, it is sufficient to successfully demonstrate utility of the compounds in animals for somewhat different pharmaceutical purposes than those asserted in the specification for humans.); Rey - Bellet v. Engelhardt,181 USPQ 453, 455 (CCPA 1974) (Two categories of tests on laboratory animals have been considered adequate to show utility and reduction to practice: first, tests carried out to prove utility in humans where there is a satisfactory correlation between humans and animals, and second, tests carried out to prove utility for treating animals.).

A PROBABLE UTILITY MAY NOT BE SUFFICIENT TO ESTABLISH UTILITY

A probable utility does not establish a practical utility, which is established by actual testing or where the utility can be "foretold with certainty." Bindra v. Kelly , 206 USPQ 570, 575 (Bd. Pat. Inter. 1979) (Reduction to practice was not established for an intermediate useful in the preparation of a second intermediate with a known utility in the preparation of a pharmaceutical. The record established there was a high degree of probability of a successful preparation because one skilled in the art may have been motivated, in the sense of 35 U.S.C. 103, to prepare the second intermediate from the first inter mediate. However, a strong probability of utility is not sufficient to establish practical utility.); Wu v. Jucker , 167 USPQ 467, 472 (Bd. Pat. Inter. 1968) (screening test where there was an indication of possible utility is insufficient to establish practical utility). But see Nelson v. Bowler , 206

USPQ 881, 885 (CCPA 1980) (Relevant evidence is judged as a whole for its persuasiveness in linking observed properties to suggested uses. Reasonable correlation between the two is sufficient for an actual reduction to practice.)."

As indicated above, a claimed invention lacks specific utility in currently available form when additional experimentation is required to establish a specific utility.

In previous responses, Applicant has provided evidence that the elimination of this protein from knock-out mice has resulted in reduced male fertility. First, it is noted that this result was neither disclosed nor predicted by the instant specification. Second, even if the specification had taught that the inhibition of the claimed protein would be expected to reduce male fertility, one could not identify antagonists thereto until an agonist for that receptor had been identified. Applicant has responded by pointing out that constitutively active G protein-coupled receptors are known in the art. This is not persuasive because the vast majority of those publications identified by Applicant were published subsequent to the filing of the instant application. In addition, the fact that some members of the G protein-coupled receptor family are constitutively active does not support a conclusion that all G protein-coupled receptors, and specifically the protein of the instant invention, are constitutively active. Even if the instant application had asserted that antagonists of the claimed receptor are expected to reduce male fertility, it still left it to the practitioner to make the further substantial contributions of devising a method for measuring the activity of the claimed protein and establishing a nexus between the ability of a compound to effect that activity and the effect of that

6) Claims 1 to 5, 17, 21, 33 and 34 are rejected under 35 U.S.C. § 112, first paragraph, **as failing to adequately teach how to use** the instant invention for those reasons given above with regard to the rejection of these claims under 35 U.S.C. § 101.

7) Claims 1 to 3, 5, 17 and 33 stand rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for the production of a protein comprising the amino acid sequence presented in SEQ ID NO:2 of the instant specification wherein that protein "is intracellularly coupled to a G protein and has G-protein signal transduction activity", it does not reasonably provide an adequate written description of any other polypeptide which meets both the structural and functional recited in these claims, or the guidance needed to make it for those reasons of record. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims. Claim 34 is not encompassed by this rejection.

Claim Rejections - 35 USC § 102

8) Claims 1 to 5, 17, 21, 33 and 34 stand rejected under 35 U.S.C. 102(b) as being clearly anticipated by the Osterhoff et al. publication (DNA and Cell Biol. 16(4):379-389, Apr. 1997). Applicant is advised that, because the previous application did not meet the "how to use" requirement of 35 U.S.C. § 112, first paragraph, with respect to the now claimed invention, it is unavailable to the instant application under 35 U.S.C. § 120.

Response to Arguments

9) Applicant's arguments filed 23 August of 2007 have been fully considered but they are not persuasive for those reasons given above.

Conclusion

10) **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

11) This application contains claims 6 to 14, 19, 20 and 22 to 30, drawn to an invention nonelected with traverse in the reply filed on 05 October of 2005. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John D. Ulm whose telephone number is (571) 272-0880. The examiner can normally be reached on 9:00AM to 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Chan can be reached on (571) 272-0841. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JOHN ULM
PRIMARY EXAMINER
GROUP 1800